NATURAL RESOURCES DEFENSE COUNCIL

January 9, 2012

Manucher Alemi
Department of Water Resources
1416 9th Street
Sacramento, CA 95814

*Sent via email to malemi@water.ca.gov*

**RE: Comments on draft Report on A Methodology for Quantifying the Efficiency of Agricultural Water Use**

Dear Mr. Alemi:

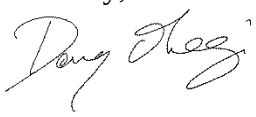
On behalf of the Natural Resources Defense Council, which has 250,000 members and activists in California, I am writing to provide comments on the December 21, 2011 draft of the Department of Water Resources' Report on A Methodology for Quantifying the Efficiency of Agricultural Water Use. While we recognize that substantial progress has been made, we have significant concerns with several elements of this draft, and we recommend that:

1) The report should not distinguish between Methods and Indicators, and the description of Productivity Indicators should be substantially revised;
2) The report's description of several of the Methods must be revised in light of inconsistent and inappropriate equations and text;
3) The report should more clearly identify that water use efficiency is not the same as reasonable and beneficial use; and,
4) The report should recommend expanded implementation, including additional voluntary efforts.

We are particularly disappointed that DWR has chosen to discount the value of the Productivity Indicators, and we are concerned that exclusion of the Productivity Indicators from the methodology (as well as problems with several of the Methods) results in the current draft failing to adequately and accurately define a methodology for quantifying agricultural water use efficiency. On the pages that follow, we provide more detail on these primary recommendations, as well as several other points. These comments supplement the prior comments (several of which were not addressed in this draft), as well as the comments we provided at the December 21, 2011 ASC meeting.

Please let us know if you have any questions. We would appreciate the opportunity to discuss these recommendations further before the next draft is released. We greatly appreciate the Department's consideration of our views.

Sincerely,



Doug Obegi
Staff Attorney

## 1) The Report Should Not Distinguish Between Methods and Indicators, and the Description of Productivity Indicators Should be Revised:

NRDC does not support the distinction between Methods and Indicators in this draft. We strongly disagree with the draft's description of the productivity indicators, which states that they "do not quantify the efficiency of agricultural water use" (page 16), are "not a measure of water use efficiency" (page 36) and that "Crop productivity and the value of production may be indicators of efficiency of water use for crop production but they do not quantify the efficiency of water use" (page 37). We also do not agree that the indicators are not part of the methodology for quantifying the efficiency of crop water use (page 11).

We agree that other factors, including those described on pages 36-37, can and often do affect the productivity of water use. However, in our view this does not mean that these indicators do not provide valuable information on water use efficiency for growers, buyers, water districts, policymakers, or the general public. Yet the current draft suggests that these indicators do not provide useful information, and it negatively describes these indicators (for instance, the executive summary describes the productivity indicators several pages after describing the other methods and indicators, and defining them as not part of the methodology for quantifying water use efficiency).

Productivity metrics are particularly useful for comparisons of fields, districts, or regions growing the same crops. We agree that the report should acknowledge that differences in productivity metrics are not necessarily due to inefficient water use, but it should also acknowledge that differences in productivity metrics should lead growers and districts to examine the reasons for such differences. In addition, as we have previously suggested, using multi-year averages helps to reduce the influence of other variables in a single year (like outbreaks of pests or crop diseases).

As a result, we recommend that the report not distinguish between indicators and methods. To the extent the final report makes such a distinction, we strongly encourage the Department to revise pages 36 to 37 and other descriptions of the productivity metrics consistent with these comments, including acknowledging that the crop productivity indicators provide valuable information on water use efficiency and that they should be used in conjunction with other methods and indicators. In addition, as we previously discussed, the report should recommend voluntary implementation of the productivity indicators at the field level. The table on page 17 should be revised to include all indicators (not just the productivity indicators) and should recommend voluntary implementation of the productivity indicators at the field level.

## 2) Several of the Methods are Inappropriately Defined and Should be Revised

As discussed at the last meeting and in the comments below, the Crop Consumptive Use Fraction and Delivery Fraction methods are defined incorrectly and should be revised. In addition, to the extent that the report distinguishes between indicators and methods, we strongly recommend that the Delivery Fraction be identified as an indicator.

With respect to the Crop Consumptive Use Fraction equation, NRDC strongly objects to the changed definition in this draft. For more than a year the equation for this method was CCUF = ETAW / AW. However, this draft included a revised equation that included AN and EN for the first time, making this equation significantly overlap with the Total Water Use Fraction, as well as being inconsistent with the Department's past use of this term and with scholarly definitions of consumptive use fraction. The CCUF equation should be revised to use the previous version.

In addition, the equation for the Delivery Fraction Method is applied inconsistently and needs to be revised (as we noted in our December 7, 2011 comments). On pages 40-41, the equation compares aggregated farm gate deliveries with total diversions reported to the SWRCB, to determine the amount of "spill out of the distribution system." However, on page 35, the equation compares aggregated farm gate deliveries (numerator) with total surface and groundwater supplies, using the "Total Water Supplies" term in the denominator (which includes groundwater pumping at the field level, see page 33). These equations are not equivalent. We recommend that the proper equation should be aggregated farm gate deliveries divided by total water diversions by the supplier (surface and groundwater). This will require a new definition for "Total Water Diversions" or a similar term on page 33-34, to distinguish it from the TWS term that includes field level groundwater pumping. We also recommend that the text on page 35 clarify that the "return flows" that are included in this equation are only flows that return into the distribution network.

In addition, to the extent that the report distinguishes between indicators and method, we believe that the Delivery Fraction should be identified as an Indicator rather than a method. Properly calculated, the Delivery Fraction equation calculates losses in the distribution system, but does not calculate the extent to which applied water is provided in excess of (or less than) crop and other needs. Like the Distribution Uniformity Indicator, it does not calculate the relationship between applied water and crop (and other) water needs, yet also provides very useful information about water use efficiency (as do all of the indicators).

### 3) <u>The Final Report Should More Clearly Identify that Water Use Efficiency is Not the Same as Reasonable and Beneficial Use</u>

NRDC and many other members of the ASC have recommended that the report clearly and unambiguously state that water use efficiency is not the same as reasonable and beneficial use. As we wrote in our November 7, 2011 comments, "we continue to believe that not all beneficial uses are efficient, nor that all efficient uses are beneficial. Efficiency and beneficial use are two distinct things, and the report should better differentiate between them." While we commend the department for removing the word "beneficial" from the names of several of the Methods, in order to avoid blurring these concepts, we continue to recommend a more explicit discussion of the differences in the introductory part of the report. We hope and expect that the next draft will include such a discussion, and we would be happy to work with the Department and other stakeholders in drafting that discussion.

**4) <u>The Final Report Should Expand Implementation, Including Voluntary Implementation of the Methods and Indicators</u>**

NRDC strongly supports a robust program of implementation of indicators and methods at the field, district, and regional/county level (provided that the indicators and methods are revised consistent with our comments). We support the recommendations in the draft that DWR quantify and report the regional scale methods and indicators (pages 12 and 16), that DWR require agricultural water suppliers to include quantification and reporting of district scale methods as part of the agricultural water management plans, including reporting of mean and standard deviation results of field scale methods (pages 12-13, 44-45), and that field level methods be implemented through voluntary programs at this time. In addition, we strongly support DWR providing additional guidance for implementation, including development of data standards, data collection protocols, and other assistance (page 44). The report should explicitly include providing a standardized approach(es) to quantifying ETAW and agronomic uses[1] (see pages 47 and 61) as part of DWR's guidance, in order to ensure a more consistent methodology is implemented by growers and districts across the state.

However, while the report's implementation recommendations are a good start, the final report should do significantly more to recommend implementation of both the methods and indicators.

- First, in addition to recommending that DWR update the list of efficient water management practices to include quantification and reporting of these methods under 10608.48(c) (page 13), the report should recommend that the Legislature add quantification and reporting of these efficiency methods as an efficient water management practice under section 10608.48(b) of the Water Code.
- Second, the report should recommend voluntary implementation of the productivity indicators at the field level, particularly the productivity of applied water indicator.
- Third, the discussion of voluntary implementation of the indicators and methods at the field level should not be limited to the mobile labs (pages 13). Instead, the report should recommend a broad range of approaches to voluntary implementation, including but not limited to the mobile labs. This might include implementation of the Sustainability Index being developed by growers, buyers and environmental groups; cooperative, voluntary implementation by growers and districts as part of the efficient water management practices provided by districts; and cooperative efforts with UC extension and other experts.
- Finally, the final report should recommend that the quantification and reporting of the methods and indicators should "show their work." For instance, rather than simply reporting the percentage results of the CCUF equation, a district implementing this method should report the estimated and recorded values for ETAW, AN, EN, and AW, including how much water went to each EN and AN use.

[1] We reiterate the point made in our December 7, 2011 comments that there is a lack of objective methodology for quantifying agronomic uses (the current report on pages 32 and 61 recommends using "accepted professional practices" for quantifying agronomic uses, as did the prior draft). The discussion of the lack of objective measurements of agronomic needs for climate control should be expanded to include other agronomic uses, such as rice decomposition. We appreciate the Department including a more objective measurement of water needed for leaching requirements in this draft (pages 22, 32, 76-77).